1
00:00:00,000 --> 00:00:03,480
From above, you can see that South Korea’s Pyeongchang region

2
00:00:03,500 --> 00:00:06,510
is nestled in a complex and rugged mountain range.

3
00:00:06,530 --> 00:00:09,750
Up close, professional athletes and spectators

4
00:00:09,770 --> 00:00:14,040
are dotted in the mountain’s crevasses for the 2018 Winter Olympics.

5
00:00:14,060 --> 00:00:16,090
The area has vast vertical drops

6
00:00:16,110 --> 00:00:19,490
and an average high of around 40 degrees Fahrenheit in February

7
00:00:19,510 --> 00:00:22,140
making it an ideal location for the games.

8
00:00:22,160 --> 00:00:25,670
As it turns out, the mountain range is also an ideal place

9
00:00:25,690 --> 00:00:28,570
for NASA scientists and engineers to study snow.

10
00:00:28,590 --> 00:00:30,870
So we’re here on the roof at the radar.

11
00:00:30,890 --> 00:00:35,240
All the games will be happening about 5 kilometers away from where the radar site is.

12
00:00:35,260 --> 00:00:40,020
This is Manuel Vega, an engineer that’s part of a NASA team at the Winter Olympics

13
00:00:40,040 --> 00:00:45,390

studying how well they can measure snow from the ground and space to better predict snowstorms.

14
00:00:45,410 --> 00:00:48,750
NASA is one of 20 agencies from 11 countries

15
00:00:48,770 --> 00:00:52,170
working together in a project called ICE-POP,

16
00:00:52,190 --> 00:00:54,800
the International Collaborative Experiments for Pyeongchang

17
00:00:54,820 --> 00:00:57,770
2018 Olympic and Paralympic Winter Games.

18
00:00:57,790 --> 00:01:01,180
Around 70 instruments have been deployed for ICE-POP

19
00:01:01,200 --> 00:01:05,910
across Pyeongchang’s diverse landscape to monitor the characteristics of snow.

20
00:01:05,930 --> 00:01:09,400
Factors such as temperature, altitude, and winds affect

21
00:01:09,420 --> 00:01:13,650
what types of snow forms and how much water is stored in snow.

22
00:01:13,670 --> 00:01:18,430
More than one-sixth of the world’s population relies on seasonal snow for water,

23
00:01:18,450 --> 00:01:22,240
yet it remains as one of the biggest gaps of knowledge in the water cycle.

24
00:01:22,260 --> 00:01:24,800
To understand snow’s role in the water cycle,

25
00:01:24,820 --> 00:01:27,970
it helps to monitor snowfall patterns around the world.

26
00:01:27,990 --> 00:01:32,030
With NASA’s Global Precipitation Measurement Mission, or GPM,

27
00:01:32,050 --> 00:01:35,940
scientists can see global maps of rain and snow every 30 minutes.

28
00:01:35,960 --> 00:01:39,850
But complex terrains with mountains and fast-changing clouds

29
00:01:39,870 --> 00:01:42,370
can be difficult to decipher from space.

30
00:01:42,390 --> 00:01:46,290
ICE-POP gives scientists an opportunity to use the ground instruments

31
00:01:46,310 --> 00:01:50,960
to check that what GPM is seeing from space is close to what they’re seeing on the ground.

32
00:01:50,980 --> 00:01:56,730
Scientists call this ground validation, which is key to understanding snow on a global scale.

33
00:01:56,750 --> 00:02:01,640
Another aspect of understanding snow is predicting when snowstorms occur.

34
00:02:01,660 --> 00:02:06,470
NASA is providing ICE-POP with one of five real-time research forecast models

35
00:02:06,490 --> 00:02:09,940
to experiment with predictions in a real-world setting.

36
00:02:09,960 --> 00:02:13,810
NASA’s model provides forecasts over 16 different Olympic venues

37
00:02:13,830 --> 00:02:16,290
every six hours to Olympic officials.

38
00:02:16,310 --> 00:02:19,690

And with ground instruments scattered across the region,

39
00:02:19,710 --> 00:02:22,600
they can test how accurate the forecasts are.

40
00:02:22,620 --> 00:02:25,390
The most satisfying thing is contributing to scientific knowledge.

41
00:02:25,410 --> 00:02:28,000
In short, the science community hopes for what